Available on Gale & affiliated international databases

ProQuest

AsiaNet PAKISTAN

Journal of **Humanities & Social Sciences**

University of Peshawar

JHSS XIX, No. 2, 2011

Impact of Inflation and Interest Rate on Stock Return

Amir Hussain[a] and Muhammad Junaid Khan[b]

[a] Institute of Management Studies, University of Peshawar, Pakistan
[b] IM-Sciences, Hayatabad, Peshawar, Pakistan

Abstract

The research undertaken analyses short run influence of inflation and interest rate on stock returns in Pakistan. Inflation was represented by "CPI", interest rate by "I" and stock return by "KSE100". Monthly data comprised of 45 observations from 1 July 2005 to 1 April 2009 was taken. Simple and Multiple regression models have been used for the estimation of coefficients. The empirical results show that there is significant relationship between the stock price interest rates and inflation. Moreover inflation is negatively related with stock prices while interest rate is positively related with the stock prices. So it can be concluded that in short- run the impact of inflation on stock returns is negative while positive in case of interest rate.

Keywords: Inflation, Interest Rate, Stock prices, Karachi Stock Exchange 100 Index

Introduction

Inflation and interest relationship with Stock return has a trace record way back to two centuries when companies started emerging and economies were becoming more and more industrialized. Different researches are undertaken in

order to describe the nature of this relationship. All important economic variables in one or other way are depicted in these three variables. Moreover, the fluctuation in world's economies also made the researches to undertake such researches in order to give benefit to the investors and make some policies to prevent the investors from the adverse impact of such fluctuations. Inflation and interest are integral part of the economy; both enjoy close relationship not only with stock return but also with each other. Inflation is present in each economy either in form of cost push inflation or demand pull inflation and sometimes inflation through expectation. Sometimes it rises above 20% and some time it takes the form of deflation. Both the extremes are adverse. It is believed that 2% to 3%is good for the economy as it shows quality improvement. Inflation above it is detrimental for the value of currency because its purchasing power is greatly affected. Some times more money injected in the economy also severally affect the prices of the goods if there is no real growth and more money, obviously prices will soar up. Similarly when interest rate is more, people will have more money to invest in bond and banks instead of investing it in equities as interest payment is more than the return they are getting from stock and vice versa. But these are not any hard and fast rules as different researches gave contradictory results. Pakistan a developing economy which is now thought by Western countries a failed state has been greatly affected by terrorism and where industries are now on decline and FDI is retracted can give an interesting picture of their variables relationship. Being a front line ally of America on war on terror, the government is successful in extracting billion dollars of aid from IMF which amounts to $11.3 billion and also in the form of Kerry Lugar Bill which amounts to $7.5 billion ($1.5 billion annually). Nevertheless, the upheavals which have shaped our industry, investors in Pakistan are still optimist and investing more and more in equity market which could be easily sought from the stock index which have crossed the Psychological level of 15000 on 20 April 2008 and peaked to 15737. 32. The remaining of the paper contains literature review in which the work of the past researchers in the same area is briefly discussed followed by methodology and data then empirical results and finally conclusion at the end of the paper.

Literature Review

The impact of inflation and interest over stock return has remained a topic of great concern for both researchers and investors. It has been probed down by different researchers at different time and space.

Fama (1981) and Gesky & Roll (1983) inferred that stock return and inflation are negatively correlated through a third variable called real economic activity; rising inflation first reduces the real economic activity which in turn influences the return on stock and profit. Fama (1981) has referred to the negative relation between stock return and inflation as "Proxy effect." According to him, the effect remains as long as the real economic activity is triggered by inflation but once real economic activity becomes unmoved by inflation the proxy effect vanishes Garbade & Wachtel (1978).

Behram & Arjun discarded this hypothesis by taking data from Brazilian market from January 1986 July 1997 and concluded that negative relation may exist between stock return and inflation regardless of real economic activity. They gave the explanation that future corporate profit is threatened by inflationary pressure and also nominal interest rises with rise in inflation which reduces present value of future profit thus ultimately reduces stock return. However, both agree that proxy effect is valid in the long run but not necessary in short run (Fama, 1975; Lintner 1975).

Nicholas (2002) based his conclusion on the analysis of monthly data taken from 1988 to 1996 on Greece that decreasing inflation pushed the prices of stock upward. Nishat & Shaheen (2004) reported that negative relation exists between these two variables by taking quarterly data on Pakistan equity market from 1973:01 to 2002:04.

Stock return was thought to be a good hedge against rising inflation in the long run. This proposition was given by a Fisher (1930) and later on was proved by empirical results of (Boudoukh & Richardson, 1993) and also by (Ely & Robinson, 1997). They are of the opinion that increased prices deteriorate the value of the financial assets so if invested in real asset like in equity thus can provide a cushion against the rising price as the equity prices are also getting soared with inflation. But some researchers are of the opinion that stock could be a good hedge in the long run but in the short run it could be a poor hedge as people spends more money on basic necessities rather than invest in stock, and thus the relationship gets its equilibrium after some time (Peter & Sellin, 2001; Fisher, 1911).

Interest rate also has a profound impact on stock return; most commonly stock return increases with decline of interest rate. However, studying literature, mix results could be obtained.

Patelis (1997) inferred that there exists a long run relationship between both stock prices and interest rates and the movement of stock prices are to great extent determined by fluctuation in interest rate. However, various other researchers have shown a different picture by concluding that prices are not influenced by the movement of interest rate (Fair 2000). The empirical results of the study conducted by Akbar (2009) on a Pakistani market also shows that stock prices are not effected by monetary policy through the level of interest rate and prevailing inflation. Interest rate is thought to have negative relationship with stock return and was successfully proved by (Hashamzadeh & Taylor,1988) but the empirical results from the research conducted by (Modigiliani & Cohn 1979) shows a positive relationship between stock return and interest rate. This positive relationship was also reported by other researchers and having this explanation that drop in the interest rate induces most of the investors not to trade in stock due to surge in the level of risk in trade of stock (Barsky, 1989; Nelson (1976).

Methodology and Data

Data

The data for this research have been taken about the three variables, i.e., KSE 100 stock Index, Inflation and Interest Rates. The stock index data has been taken on monthly basis from the Business Recorder while monthly interest rates of KIBOR are taken from the State Bank websites and monthly inflation rates are taken from the Ministry of Finance annual Reports. All the data were taken from the Period of 1 July, 2005 to 1 April, 2009.

Methodology:

All the data is in time series, simple regression and multiple regression are used. In estimating the effect of inflation over stock return first of all simple regression is used by taking inflation as an independent variable. The proposed econometric model for which is

$$KSE100 = \alpha + \beta CPI + \mu. \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1)$$

The variable KSE100 indicates here stock return and is dependent variable over CPI which is independent. "α" shows intercept and "β" shows slope coefficient. Second model is about three variables in which stock return is regressed over inflation and interest rate.

$$KSE100 = \alpha + \beta_1 CPI + \beta_2 I + \mu. \ldots\ldots\ldots\ldots\ldots 2)$$

μ shows error term. β_2 is slope coefficient of interest rate.

Empirical Results

The empirical results of all of the two regressions Model are as under.

Model #1 Regression

Variables Entered/Removed [b]

Model	Variables Entered	Variables Removed	Method
1	Inflation Rates [a]		Enter

a. All requested variables entered.

b. Dependent Variable: StockIndexKSE100 Return

Model 1: OLS estimates using the 45 observations 2005:08-2009:04

Dependent variable: Stock Return

Model# 2 Regression

Variable	Coefficient	Standard Error	T- Stat.
Inflation Rate	-0.0862854	0.0419213	- 2.059
Mean of dependent variable		0.00348222	
Standard deviation of dep. var.		0.389019	
Standard error of residuals		0.389034	
Unadjusted R-squared		0.82645	
Adjusted R-squared		0.826	
Durbin-Watson statistic		1.98	

A: Inflation is independent Variable
B: Stock Index Return is Dependent Variable.

Model # 2: Regression

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Interest Rates, Inflation Rates [a]	.	Enter

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Interest Rates, Inflation Rates [a]	.	Enter

a. All requested variables entered.

Model 2: OLS estimates using the 45 observations 2005:08-2009:04

Dependent variable: StockReturn

Variable	Coefficient	Standard Error	T-Stat	F-Stat.
Inflation Rate	-0.085620	0.0424108	-2.0188	
Interest Rate	0.0952848	0.0364919	2.61	18.2355
Mean of dependent variable		0.00348222		
Adjusted R-squared		-0.8322		
Durbin-Watson statistic		1.996		

A: Inflation and Interest Rates are Independent Variables.
B: Stock IndexKSE100 Return is Dependent Variable.

Conclusion

This paper basically analyses short term relationship between inflation, interest rate and stock return. Simple regression shows negative relationship between stock return and inflation which is in line with most of results of previous researches. Stock in this case is a poor hedge as one unit increase in CPI brings down stock return. The results of the simple regression are statistically significant. Similarly the regression run on the second model also gives statistically significant results. Interest rate here positively influence stock return with this theoretical underpinning that investors are risk averse as when interest rate increases it reduces the risk premium for the investors due to increase in risk free rate. Thus with less exposed risk investors start trading in stock and in return stock prices go up.

References

Adrangi, A. & Arjun, C. (2002). Inflation, Output and Stock price: evidence from Brazil. *The Journal of Applied Business Research,* 18: 61 – 77.

Akbar, M. & Kundi, U. (2009). Monetary Policy Variables and Stock Prices in Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 1: 84 – 102

Apergis N. & Apergis, S. (2002). Interest rate, inflation and stock price: The case of Athens stock exchange. *Journal of policy Modeling*, 24: 231–236.

Baily, W. & Stulz, R.,M. (1990). Benefits of international diversification: The case of Pacific Basin stock markets. *Journal of Portfolio Management*, 6:55 – 60.

Barsky, R. (1989). Why do not the prices of stock and bonds move together? *American Economic Review*, 79: 1132 – 1145.

Boudoukh, J. & Richardson, M. (1993). Stock returns and inflation: a long-horizon perspective. *American Economic Review*, 1346 – 1355.

Fair. B. C. (2000). Federal policy and the effects of stock market crash in the economy. *Journal of Business Economics*, April, 7-14

Fama, E. F. (1975). Short-Term Interest Rates as Predictors of Inflation, *American Economic Review*, June, 65: 269 – 282.

Fama, E. F. (1981). Stock returns, real activity, inflation, and money. *American Economic Review*, 71:545-565

Fisher, I. (1911). *The Purchasing Power of Money*, New York: MacMillan

Fisher, I. (1930). *The Theory of Interest*. New York: MacMillan

Garbade, K. & Wachtel, P. (1978). Time Variation in the Relationship between Inflation and Interest Rates, *Monetary Econ.*, Nov. 4:755 – 65.

Geske, R. & Roll, R. (1983). The fiscal and monetary linkage between stock returns and inflation. *Journal of Finance*, 38: 1 – 32

Lintner, J. (1975). Inflation and security returns, *Journal of Finance*, 30: 240–280.

Lintner, J. (1975). Inflation and Security Returns, *Journal of Finance*, May, 80: 259–280.

Modigliani, F. & Cohn, R. A. (1979). inflation, rational valuation and the market. *Financial Analyst Journal*, 38: 24 – 44

Modigliani, F. & Cohn, R. A. (1979). Inflation, Rational Valuation and the Market. *Financial Analysts J.*, Mar/Apr. 24-44.

Nelson, C. R. (1976). Inflation and Rates of Return on Common Stocks, *Finance*, May, 31:471-83.

Nishat & Shaheen (2004). Macro economic factors and Pakistani Equity Market, *The Pakistan Development Review*, 43: 619 – 637.

Sellin, P. (2001). Monetary policy and the stock market: theory and empirical evidence. *Journal of Economic Surveys*, 15:491 – 541

Solnik, B. (1983). The relation between stock prices and inflationary expectations, *Journal of Finance*, 38:25 – 48.